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# THE MUSEUM.

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A Journal Devoted Exclusively to Research in  
Natural Science.

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Published the Fifteenth of Each Month by  
WALTER F. WEBB, ALBION, N. Y.





## WANTS, EXCHANGES AND FOR SALES.

All notices that come under above will be inserted in this department until further notice at one-half ( $\frac{1}{2}$ ) cent a word. No notice less than 25c. Terms Cash with order. *No charge for address.* I shall at all times endeavor to keep parties, whose reputation is of a doubtful character from using these columns.

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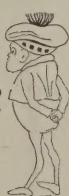
**TRY** the Exchange columns of THE MUSEUM. The publisher has put forth practically no effort to secure exchanges or ads., having simply put one small ad. in a magazine of similar character to this, to call attention of the public what he intended to issue. The number that have responded to this notice, is sufficient guarantee to any fair minded man of the faith of the collectors in the future of the MUSEUM. It is to be the standard of intercourse among all collectors. Let me hear from you at once with an ad. for the December issue. W. F. WEBB, Albion, N. Y.

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Gray Sea Eagle.....	2 00	Rose-breasted Grosbeak.....	15	Bluebird.....	02
Merlin.....	30	Black-headed Grosbeak.....	10	Western Bluebird.....	12
Kestrel.....	25	Indigo Bunting.....	08		

WALTER F. WEBB, ALBION, N. Y.



# THE MUSEUM.

A Monthly Magazine Devoted to Research in Natural Science.

VOL. I.

ALBION, N. Y., NOVEMBER 15, 1894.

No. 1

## An Old Timer's Greeting.

It has been a number of years since I have taken the privilege of the columns of our special journals, and I wonder how many of my old friends I will greet through the medium of THE MUSEUM. To such I would say that although time has wrought some changes with the members of the Bristol Ornithological Club and many are in distant lands, yet some few friends including the writer have renewed each season our companionship with our local bird life.

The well-known colony of Ospreys around Palmer's river, hold their own in numbers; a visit during the second week in May, 1894, giving a count of eighty-three occupied nests, one of which was erected on the top of a telegraph pole, along the side of a railroad. The smoke from every passing engine ascended around the structure, but the birds have each year built a new nest to replace the destruction of the line-men.

Red-shouldered Hawks are a very common bird in our Bristol county woods; much more so than one would suppose possible in thickly settled communities. Many of these birds are familiar friends, and their nesting has been noted in previous accounts. By April 12th, 1892, the "Cobble-hill" pair had laid a set of five eggs, which is an unusually large number and worthy of special mention. In previous years the usual clutch had been three. The "Goff's Woods" and "Reservoir"

pair were visited on April 20th, 1894, and the sets of three eggs each taken. Both of these pairs were first robbed in 1882, and every season since they have not failed to present us with a fine clutch. They have persistently nested in the same locality, not resorting to alternate situations as other pairs have done.

A freshly laid set of six Marsh Hawk's eggs were taken on May 7th, 1892, which is the earliest date I have ever taken any eggs of this bird. In the immediate locality another set of four fresh eggs were taken on May 29th, although both pairs of birds were in evidence on the first named date.

The Sharp-shinned Hawks, eluded my limited search for them this year, but very handsome sets were taken for the three previous years. One set of eggs taken May 19th, '92 were extremely beautiful. This pair immediately built a new nest, in a grove near by and another set was ready on June 7th. All nests of this Hawk have been placed in rather small pines in quiet open groves.

Some quite rare birds have been found nesting during late years. A nest and five eggs of the Nashville Warbler were taken on June 2d, 1892. The nest was sunk flush with the ground on a rather steep side hill in open sproutland and incubation had scarce begun. A nest of the Solitary Vireo with four eggs showing heavy incubation was found on May 30th of the current year. They differ greatly in nidification from the other New Eng-

land Vireos. They have the usual pen-sile nest, but in my experience placed on some dead dry limb, not at all screened by leaves, as the Red-eye and Warbling Vireos usually are. One found June 7th, 1885 and noted in Bulletin No. 2 of B. O. C. was placed on a dead limb of a pine, and very stationary.

The Black and White Warbler, while an extremely common bird of our woods, is seldom flushed from her nest. One was discovered quite by accident, on June 3d, '94, while walking through a rather wet swamp, a locality in which I did not expect to find any ground breeders. The nest was placed on a "hummock" at the base of a maple and partly covered by a root that branched off from the trunk some few inches above the ground. The eggs were five in number of a very clear transparent white with a circle of fine amber spots around the crown. In every other instances in which I have noted the nidification of this bird, the nest has been placed on a rather dry slope free from moisture.

The Indigo, Rose-breasted Grosbeak, Crested Flycatcher and Yellow-breasted Chat, are very rare local birds, and their nesting is an occurrence of interest.

The quite famous colony of Parula's in the large moss covered orchards of Rockyhill are still in evidence. They have been visited by nearly every collector in this part of New England, and eggs from this locality must be in many collections. They have not been disturbed much during the past few years and their numbers are greatly on the increase. It is seldom that a globular nest of these birds are found.

They generally work out a cup shaped cavity in a bunch of moss which renders their homes much less conspicuous, and it is often that one is obliged to give the limbs of the tree several smart raps, to ascertain if it is inhabited by these dainty little warblers.

In a rather active collecting experience now extending back for fifteen years I have never found but a single set of eggs of the Cat-bird numbering more than four, and that was a set noted on May 28th, '94. I would be pleased to learn how great a rate such a sized set, is to the more common compliment of three or four. In this connection I would state that I always look into every Robin's nest for the chance of a possible set of five to record, but it seems as if I should have plenty of opportunities and time to keep on looking.

F. H. C.,  
Bristol Co., Mass.

### Nesting of the Whip-poor-will.

There are, comparatively, very few of the horde of collectors in the Union who have taken the eggs of this bird, and the description of the breeding habits are rare. The price of eggs has remained quite high and even in these days of hard times when prices drop on nearly all things, Whip-poor-will eggs maintain their prestige. Every year ignorant buyers and sellers traffic in Nighthawk's eggs and think in all sincerity that they are Whippoorwill's. I do not doubt that there are hundreds of the impositions in the collections of the younger oologists. And, too, there are many collectors who do not know the difference between the two birds, and only have a vague notion that



there are distinguishing points. With the prospect of giving offense to advanced collectors by occupying your space, I will beg pardon and point out two characteristic marks by which the two species may be identified.

In the Whippoorwill we find a row of long stiff bristles growing from the edges of the upper mandible. The Nighthawk has no bristles or hairs growing from its mouth, but has an identifying mark in the shape of a white stripe or spot on the underside of the wing. This mark can be seen when the bird is flying. But in spite of the difference in the two birds, so often confounded, many agriculturalists will assure you that the two species are one and the same bird.

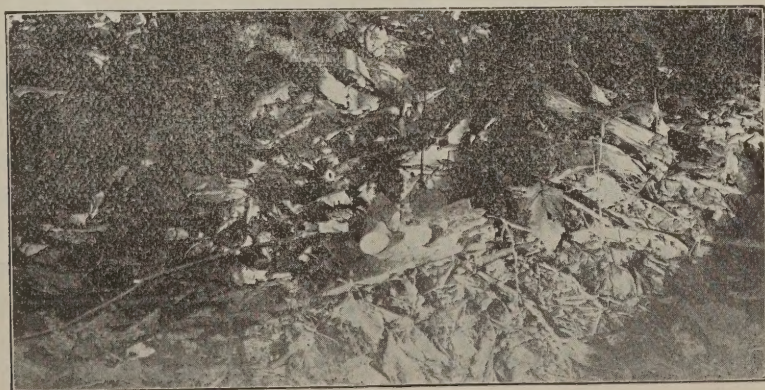
This mysterious crepuscular species arrives in Southern Michigan about April 20th. It is occasionally seen by the middle of the month, but oftener is not observed until after May first. Carefully concealed in the thick, little frequented forests, the Whip-poor-will is often overlooked during the first two weeks of its stay, for it is only after the birds have arrived in numbers and begin to sing at twilight that their presence is noted by the average observer. If the weather remains chilly in early

May these night-singers are sometimes not heard till the tenth of the month.

In the latter part of May, sometimes in early June the eggs are laid. One instance is brought to my recollection where the eggs were found on May 17th, but this was remarkably early and unusual. I have found three complete sets of eggs in as many counties in this state, and one egg at another time, and also the young birds in two instances.

There are very few, if any species of bird who make as little preparation for the eggs as the subject of this sketch. A nesting site is selected, usually among the bushes in a forest, the old bird deposits the two eggs side by side in a little hollow. Always in my experience, the ground was covered with a carpeting of dead leaves of the previous season, and the slight hollow was therefore ready lined. Someone has said that the birds scratched the hollow for the eggs, but this is probably not the case. From careful observations of the hollow and the immediate surroundings, I am satisfied that not a leaf is disturbed.

The following cut gives an accurate view of one nest and two eggs.





Three of the nesting sites that I have found were in high oak woods, two were in a lower locality and not far removed from water, and in a mixed woods of hawthorn, dogwood, basswood, elm and some ash and beech, and one was in a beech and maple forest. The eggs were always in a slight hollow and rested on a bed of dry leaves. In one instance the eggs touched a small dead limb which bound one side of the hollow, and rested with their ends against this unusual boundary. In every case the site was quite near to, or beneath a thicket of bushes or small trees. Without exception, the neighborhood of the location was well grown up with thick underbrush.

All of my eggs were discovered from the old bird flushing as I passed near. This is the usual experience of collectors, and it is a remarkable find if one runs across the eggs without the aid of the setting bird. In fact, it is surprising to secure the eggs by any means, when the nesting site is sought. My finds have always been accidental and entirely unexpected, while repeated trials at nest finding have invariably resulted in failure. My first set of eggs was found thirty years ago, and not another nest was discovered until ten years later. Another set slightly incubated was taken May 25, 1884. Other sets taken by friends of mine were as follows: Fresh set May 28, '76; May 22 and 28, '77 and May 21, '79. All in the southern part of the lower peninsula.

The old bird generally rises when the stroller is very near, and with a few flops settles at a little distance, where she looks at one with big star-

ing eyes. If again flushed, she circles about the collector. At one time a friend found a set of eggs, we watched the old bird with interest, as she gave evidence of great concern, although the eggs were fresh. After flushing she flew about five or six yards, and alighting, eyed us. We flushed her again, when she uttered a peculiar pathetic note, not unlike the note of the old hen Partridge when she tries to lure an interloper from her brood, but not as loud. When the young birds are found the old bird flops about much like the nesting Woodcock and the male bird sometimes lends his presence, when both circle about their young, or perch on low limbs or logs near and stare at the intruders.

The eggs are among the most beautiful of American bird's eggs and always commands admiration. Of crystal white they are spotted and dotted with at least two colors or shades, and sometimes with three or four. Often the markings are about evenly distributed over nearly the entire surface, and when of this pattern, the colors are generally shown in formless blotches. These blotches have the appearance of showing through an external coat, as if obscured with a very thin covering of varnish. The surface, shining and bright, yet showing beneath, the obscured modest coloration of lavender or lilac tints. Again the eggs are marked with smaller spots of two or three shades of the above colors, and these dots and spots are plainer than the obscured markings, and are quite often placed in the form of a ring nearer one end. Occasionally the coloring of the markings is of a yellowish-brown. The eggs are always nearly



elliptical and often, apparently, exactly so.

Many writers have said that this species, when disturbed in nesting, will remove to another quarter by transporting the eggs to a new site. It is claimed that the bird carries the eggs in her mouth and some writers even assert that the young are removed by this means. The Chuck-will's-widow and Nighthawk are also credited with this strange, but convenient habit. I have yet to learn anything of this nature from my own observation, and must say that we should not accept the theory until positively shown that such is the case. There is no doubt that the members of this family are fully capable of carrying an egg in their cavernous mouth, but does it follow that we are to believe a tale of this nature because of the capacity of the birds to accomplish the act.

Long before Columbus discovered America; yes, we may say, before the commencement of the Christian Era, representatives of this family were called goat-suckers, because of the ignorant belief that these birds were in the habit of sucking goats. It would be impossible to approximate the number of centuries in which this fabulous story has been credited, and to this day persons are found who thoroughly believe it, as well as other equally unreliable yarns. Most of my readers have met men who claimed to have seen porcupines throw their quills. And the strangest part is that the story is sincerely believed by the recounters who, probably, from telling it so frequently, have come to believe in its truth. As Shakespeare says:

"Like one,

Who having, unto truth, by telling of it,  
Made such a sinner of his memory,  
To credit his own lie."

Has anyone ever seen a Nighthawk, Whip-poor-will or any other representative of this family seize an egg or young one in its mouth and fly away with it? There is chance for investigation here, and if someone will describe the *modus operandi* of so-called goat-suckers transporting their eggs or young, and send in the account they will be filling a long felt want, and will settle a disputed point.

This criticism is not made to stimulate discussion, or in the nature of affrontary, but rather as a mild hint to collectors, and particularly observers who are desirous of publishing their notes, to

"Be sure you are right, then go ahead."

After moulting the Whip-poor-will again tunes up his peculiar, loud, sounding jargon, and may be heard pleasant evenings even as late as September 20th. This species arrives, on the average a fortnight earlier than the Nighthawk and remains with us quite three weeks later.

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### Labrador Notes.

W. A. STEARNS.

Very few persons are acquainted intimately with the region known on your maps as Labrador. Until recently, or within recent years, only, has our knowledge of this vast peninsula, jutting out into the Atlantic ocean in the North and extreme East of our continent, broadened into something definite.

Labrador,—*La Bras d'Or* of the French, or "The Arm of Gold." This is one of its derivations. There is a



popular tradition that a sailor by that name (Labrador) did discover the region and thus, eventually, named it. It was probably really discovered by Basque fishermen. Look in your encyclopedias and see who the Basque were.

Labrador is no part of Canada, as many suppose. Most of the people who say they have been to Labrador have never been there at all. In common parlance, Labrador is *all* the region East of the Sanguenay River, along the North shore of the St. Lawrence River. Really it does not begin until we are nearly half way through the Straights of Belle Isle, and at a place called Blanc Sablon: This little fishing village is the dividing line between Canada and Labrador, the real Labrador I mean; and the real Labrador, a region of rocks, scant vegetation, sea washed shores, and few natural attractions. Such has been *supposed* to be the case, until within recent years.

Lately, within twenty years, a good many people have visited this locality. It has rock-bound coasts in reality: Yet it also has green fields and sunny hillsides; fine rivers, lakes, waterfalls, and mountain scenery. It is a game-abounding country; and the deer herd in the interior in large bands. The black bear is not infrequent. Many smaller wild and game animals abound. Fur-bearing animals are plenty in winter, seals are in its waters, ducks and geese and an infinite quantity of shore and game birds are common, and trout, salmon and codfish can be obtained fresh from the water or the nets almost literally at a moment's warning. These are a few of the attractions of Labrador.

Then we have icebergs: Immense fellows, some of them larger than any block of houses or stores in New York. You can feel their icy breath when a mile away from them. They sail majestically along and ground. Then the weather begins to be warm and they go to pieces with a noise like thunder, and scatter into a thousand fragments.

In winter Labrador is cold. • It snows, it freezes, and the thermometer goes down from 10 to 40 degrees below zero nearly every night during the cold weather.

People travel by boats in summer, and dog sleds in winter. The dogs are harnessed, the rider sits on the sled and controls them with a whip and without any reins. This whip has a handle about a foot long and a lash about sixty to one hundred feet. It takes a great deal of experience to crack this whip; it will more often fly back into your face if you do not know how to handle it. A driver of experience has been known to cut a gash in a man's boot sixty feet away and not hurt any part of the man.

Why do visitors go to Labrador? Besides all the attractions I have mentioned, the air, when it is not foggy, is about as perfect as is to be found anywhere on the globe. Clear, crispy, and invigorating, it surprises you into forgetfulness of aught but the passing moment. You forget the humdrum and cares of life. You are inspired with new thoughts, new emotions, and return to your home with new vigor to pursue your daily tasks once more.

Forget the fogs, the black flies and the mosquitoes, these are the bad points of the place, and you always remember Labrador with intense interest.

Doubtless two of the most interesting birds on the whole Labrador coast and that afford the greatest opportunity of study are the Auks and Puffins. Most collectors are more or less familiar with the eggs, which are very pretty and show really wonderful diversity of color, but a great many probably are not familiar with the breeding habit of the species, except in a vague manner. I will here give descriptions of the two species taken from my "*Bird Notes in Labrador*."

RAZOR-BILLED AUK: TINKER TURRE.

*Utamania torda*. — (L) Leach.

Regarding this and the succeeding characteristic birds of Labrador a book could be well written, but we must pass them by with notices merely brief but to the point. With regard to the Razor-billed Auk, the "Tinker" or "Turre" as it is often called, I have noticed them breeding at the Fox Islands, off Kekarpuwei River, in almost as large colonies as the "Parakeets" off Parakeet or Greenly Island. I noticed them, also, in thousands about several other small islands, and found that this species was always very abundant about this locality while much rarer and replaced by the Foolish Guillemot or "Murre" farther northward. Here they breed in the crevices of the rocks, long, deep, and narrow clefts being sought. I did not find but a single egg in a nest but was repeatedly told by the inhabitants that, if I took the eggs, the birds "will lay again another day." The people here systematically take all the eggs they can find regularly twice a week throughout the breeding season, and find the birds so wonderfully accommodating that the last batch taken is near-

ly as numerous as the first. The "Turres" associate with both the "Murres" and the Black Guillemots. The egg of the latter bird, though smaller and otherwise distinct, is not unsimilar in appearance, and often the two are found breeding side by side, though seldom ever in any great numbers. The Razor-billed Auks are among the first birds to be seen on approaching the Labrador coast. We found them much more abundant in Southern than in Northern Labrador. With both the Razor-billed Auk and the Foolish Guillemot considerable similarity of habits appear to exist; possibly this results from the fact that both species are so numerous that the chances of individualizing them is reduced to the shape of the bill as seen at short range only, but regarding the flight and habits of the two I know of no one who has satisfactorily, to me at least, distinguished between them. We saw thousands of both species; they passed and repassed us so rapidly and so thoroughly bewildered us, as they seemed to be bewildered themselves, that I could not tell surely in describing either species whether the remark applied equally to both or exclusively to one. It appears to me that both were remarkably similar in habits.

On approaching the coast we saw single birds or long lines of them flying here and there in a frightened manner close to or near the water, often almost touching the waves with their wings as they veered or rose and fell in undulations like the billowy crests beneath them. They were never wild, but flew directly over our vessel or across her bows with as much freedom



as along the surface of the sea on either side of us. Their flight was strong and well sustained, the beats of their wings rapid and powerful. At times they would turn from side to side quickly, so as to show alternately their white bellies and their black backs. They appeared to prefer a long, straight line from which, if they veered at all, it was suddenly and in a right angled direction. The nearer we approached the coast the more abundant they became. They filled the waters and the air around about and above us. We could have shot hundreds from the deck of our schooner, as she bowled along without apparently diminishing the number about us or frightening off those already around. They would often drop suddenly, as if shot, to the water beneath them, where they would remain, evidently perfectly at home, keeping pace with us with their swift swimming, or diving with incredible alacrity and remaining beneath the water for several minutes to appear in some direction contrary to that looked for to continue their gambols, or to take wing as suddenly as they took to the water and disappear in the distance.

On the approach of stormy or foggy weather this species, or its neighbor the Foolish Guillemot, I could not learn which, though perhaps it is a habit of both species, assembled in large numbers near some shoal, out at sea a little ways, and seem to go through with sort of a mock caucus or citizens' assembly, each bird uttering hoarse rasping note that together can be heard a mile away. From the resemblance of the sound to the word used, the people call them at such times, "gudds" and

the noise reminds one more of the wrangling of human voices at a "town meeting" than of anything else that I can imagine. Nor at these "meetings" did the sound of our guns seem to frighten them in the least; they would simply move off in a body; farther to sea, and then continue their strange manoeuvres even more fiercely than ever.

When in flying they wish to turn in some contrary direction, they open and shut the feathers of their tail as if, thereby, to more surely direct or assist their motions. The people shout and wave their hats at them and call out "turn-about, turn-about" or "gudd, gudd, gudd" and various other words and expressions, thinking thereby, so they say, that the birds will turn and fly directly at them and in fact it seems as if they often did this very thing. Many a fine hour's sport have I had practicing upon these same fellows when on the wing, and it requires a good gun and a heavy charge to kill, at the first shot, these tough, hardy birds; yet we often ate the flesh of their breast, when thoroughly boiled and found them very good and not at all fishy.

I will not attempt to accurately describe the eggs of this bird. When once seen they can never be mistaken for the eggs of any other species with which I am acquainted. The ground color is white, and there are black scrawls all over its surface chiefly concentrated into a blotched ring at the greater end, with rarely any markings at all on the smaller end. They are deposited anywhere in clefts of rocks, in open situations, and wherever the bird happens to be when desirous of laying. The breeding habits of this

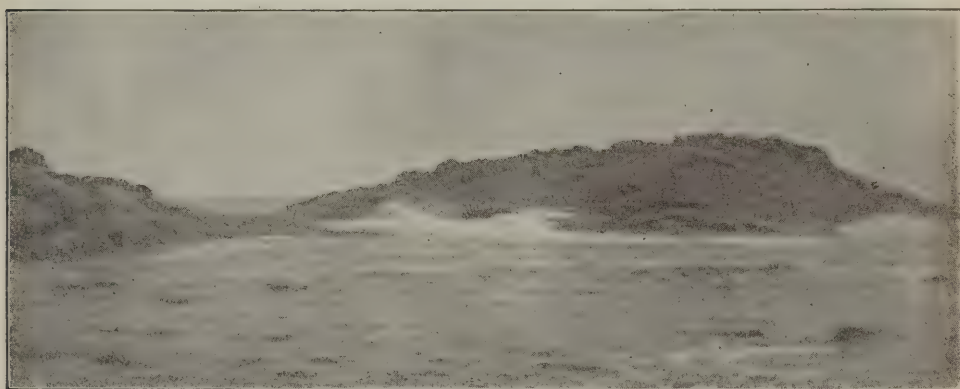
bird, are like their other habits, to me at least so similar to those of the Foolish Guillemot, that I must leave the discriminating between them more closely for others.

COMMON PUFFIN—PARRAKEET.

*Fratecula artica.*

However similar in habits the Razor-

billed Auk and Foolish Guillemot may be, it is different with the Puffin, another of Labrador's characteristic birds, which has habits peculiar to itself. We found the Puffin occasionally only as we approached the Labrador coast, and occasionally only until we reached its vast breeding grounds the Parrakeet and Greenley Islands, just within the mouth of the straits of Belle Isle.



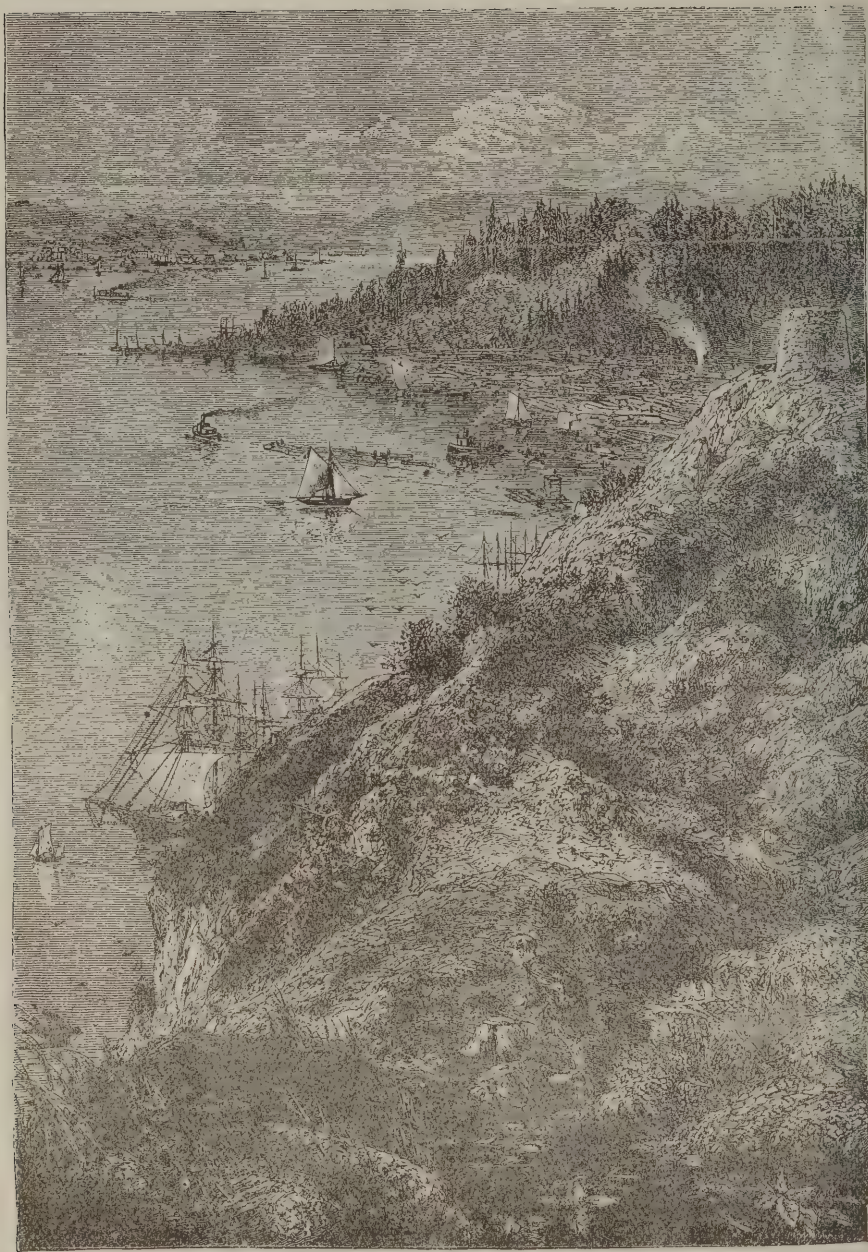
Greenly Island; the home of the Auks and Puffins.

Here they congregated in tens of thousands nor was hardly a single bird seen until we were within half a mile of the islands, then they arose of one accord, and as if with a common impulse, began circling around their abode and nesting place. If there were one hundred birds, there were as many thousands. They flew above, about and around us; they lined the waters, they sat like sentinels upon the shore and rocks, like flies upon a plate of molasses, or hornets upon a sugar barrel. They seemed utterly bewildered by our presence, and so tame that we could almost catch them or pick them up in our hand. They had tunneled the ground with their holes in every direction, and hundreds peered cautiously from their burrows or flew from them

to join the dense black ring that wound around and around the island.

Their burrows extended far into the loomy earth of which the island was composed, notwithstanding the impediments in the shape of rocks everywhere, above and below the ground. I doubt if man or animal could have picked its way across this island without stepping upon or breaking the earth's crust into one of these holes. They are made by the bird itself, aided by its strong bill and sharp and powerful claws. They are about the size of the body of the bird or a little larger and generally from two to three feet deep. They wind and bend and often intermingle, much as in the case of the well-known Bank Swallow. At the extremity is a very little dried grass and





A View of the St. Lawrence on the way to Labrador.

a single white egg, with seldom any other marks excepting perhaps a few obsolete scrawls or spots, and a general bluish or brownish tint upon the otherwise white shell.

My notes, add a few remarks which may be of interest; 'A great trick of the Labradorians is to get a greenhorn to stick his hand into one of these burrows of the bird when the bird is supposed to be within. If you examine carefully the bill—of horn, nearly two inches in length and about the same in height—you will see that a most alarming pair of forceps may be thus put into motion, and, as the bird is one of the fiercest of its kind, can readily imagine why the victim never repeats the experiment.

The number of birds that I saw on Greenly Island was simply immense, and could never have been counted. I have often seen the water covered with a clustered flock, all engaged in making the hoarse, rasping sound that has been mentioned before, and is not unlike the filing of a saw, that is made by both the Auks, and which gives all alike the name of "gudds." When on the wing I seldom if ever saw them mix with other birds. Though they appear in large numbers at stated times, they disappear or rather disperse after breeding almost as suddenly as they came; yet stragglers do not leave until the harbors are nearly if not quite blocked with ice.

At Greenly Island, although there is a large fish canning establishment, houses, and a lighthouse on the North-east end, these birds occupy the other side unmolested and are seldom interfered with by gunners; yet the island,

is scarcely three-quarters of a mile long and even less than half a mile wide.

The flight of the Puffin is as swift as an arrow. It has no notes that I could perceive. Then in the water it is obliged to rush over the surface some feet, flapping its wings and apparently paddling vigorously before it can gain sufficient impetus to take flight. When sitting sentinel-like on some rocks, previous to taking a downward plunge into the air to wing, it reminds one greatly of pictures of Auks and Penguins, which birds they greatly resemble in many respects. We found the breasts of this bird when made into a soup and boiled thoroughly not bad eating, though much tougher than were the Auks we tried.

### The Nesting Habits of the Yellow-billed Tropic Bird.

The Yellow-billed Tropic Bird (*Phaethon flavirostris*) better known to the Bermudians as the Boatswain Bird, is an abundant representative of the Bermudian Avifauna. My first acquaintance with this bird was on August 2d, 1894. When about 10 miles from Bermuda I was greeted by a pair of Tropic Birds flying over the steamer uttering their peculiar cries.

The Boatswain Bird, I was informed by Mr. Hayward, lighthouse-keeper at St. David's, arrives in the Bermudas about the latter part of March and remains until about the 25th of August, when they gradually disappear. Although distributed all around the islands, I know of no place where they are more abundant than on the islands in Harrington Sound.

Trunk Island, of comparatively small area, seems to be a favorite resort, as



it was here that I found more nests than all those which I observed elsewhere. On the shore of this island are a great many crevices among the rocks, which form the nesting places of this bird. I found two nests not more than a foot apart; and each nest had its bird sitting on an egg. This would have made a fine picture for "THE MUSEUM," but unfortunately I had left my camera at the house.

The eggs are laid on the bare ground unless anything is handy with which to line the nest. The bird never lays more than one egg at a setting and has several settings each season. The eggs are chalky white, thickly spotted with chocolate-brown becoming more dense at the larger end and often presenting a smeared appearance. In some specimens the color varies from a reddish brown to purplish chocolate, but the predominating color is chocolate-brown. The average measurement is about  $2.23 \times 1.53$  in. The measurements of three specimens are as follows:  $2.24 \times 1.50$ ,  $2.19 \times 1.54$ ,  $2.26 \times 1.53$  in. respectively. The first was found at the entrance to the Shark's Hole, along the shores of Harrington Sound, in a hole in the rocks about five feet from the water. The second was found on Trunk Island, in Harrington Sound, in a crevice in the rocks. There was nothing in the nest for lining except a few feathers of the old birds. The third was also found on Trunk Island under a pile of large rocks which had fallen down and formed a place for a nest. This was lined with some weeds and a few feathers. The birds lay at least two eggs in a season and probably more as there were a great many young and a few eggs examined when

we made our visit to the islands, which was very late in the season.

The birds are very reluctant in leaving the nest, in fact they will not leave until removed by hand. I tried to get one old bird off the nest by poking her with a stick, but with out avail. They are not very nice things to handle, especially if they can get a chance to use their sharp serrated bills. I used a hand net which I threw over their heads, and getting them tangled in the net, managed to remove them from their nests. The young are gray in color, in fact they are gray all over, feet and bill, and present a striking appearance, looking not unlike balls of cotton. One of the members of our party and myself tried to get a photograph of two youngsters, but they were so young and unshapely that when the picture came out they had very little resemblance to any thing except a bundle of cotton.

Both the male and female have two long tail feathers, but in every specimen which I saw there was only one which I suppose was due to moulting. The birds have a graceful airy flight and fly very low at times nearly touching the water. While my trip to the Islands was rather late in the season for collecting, I managed to get a few specimens of birds and eggs. The Bermudian government, I believe, imposes a fine of 5£ on the offender for each bird killed.

B. BUCKENHAM,  
Chestnut Hill,  
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December number will contain a fine illustrated article on Pacific Coast Starfishes. Don't miss it.

# THE MUSEUM.

A Monthly Magazine devoted to Ornithology,  
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Mineralogy and Allied  
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Walter F. Webb, Editor and Pub'r,  
Albion, N. Y.

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WALTER F. WEBB,  
ALBION, ORLEANS CO., N. Y.

## NOTES.

We had the pleasure of a personal call a few days since from Mr. C. P. Wilcomb, Custodian of the Golden Gate Park Museum, San Francisco. He is about to loan his entire collection of eggs to their museum. Also Mr. L. I. McCormick of the Glen Island Museum of Natural History, New York City. Mr. McCormick intends to spend the winter in the Mediterranean collecting. Prof. Henry A. Ward also called on us just before going to press. Prof. Ward, as many of our readers know, is at the head of the famous Ward's Natural Science Establishment at Rochester, N. Y., the largest of its kind in the world. He starts in a couple weeks on a big

collecting tour, stopping at various points on the Mediterranean, Red Sea, Indian Ocean, Calcutta, Singapore, etc. We doubt if there is another man in the world with as wide experience as a collector, having crossed the Atlantic 28 times on similar trips to this one.

We here extend an invitation to all Collectors and Teachers coming near Albion to stop off and see us. We are easy of access, having moved the entire business of the late Lattin & Co. into new quarters in the village, the old concern being located two and one-half miles north in the country. We are glad to "take care" of all who can come.

Having had various inquiries as to where F. B. Armstrong had gone, the publisher of the MUSEUM having recently bought his entire stock, will say; he is hard at work collecting probably as fine a lot of birds as have ever been taken in Mexico. The bulk of his stock will be advertised in later issues.

Messrs. Southwick and Critchley report a fine specimen of American Egret killed at Seaconnet, R. I., Oct. 12, also an immature Duck Hawk at Newport, R. I., Oct. 10. Both birds are very uncommon in that section.

Mr. Kirk B. Mathes, formerly with Lattin & Co., has gone to St. Augustine, Fla., where he has opened a high class Art and Curio Store. Any one desiring any relics or Florida



Curios from this the oldest city in America, can probably get them by writing Mr. Mathes as we know him by experience to be of unusual amiable disposition.

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Mr. E. Haymond a Taxidermist of Flint, Mich., writes that he has just had sent into his shop a large Bald Eagle which measures from tip to tip 7 feet and 3 inches. From base to tip of mandible  $3\frac{1}{2}$  inches. From tip of tail to tip of mandible 3 feet. Weight 10 pounds. The bird was taken near Flint and gave the farm hand who captured it a lively tussle before he succeeded in killing it. It had been wounded by some gunner, and had evidently flew as far as it could.

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We shall be pleased to receive and publish at all times, records of rare finds in the Ornithological line.—Such items are often of great interest.

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### Atlantic Coast Star Fishes.

The Eastern coast of our country, while not so prolific in forms of sea life as some of the more tropical coasts, is nevertheless quite as interesting as any with which I am familiar.

#### Order I.

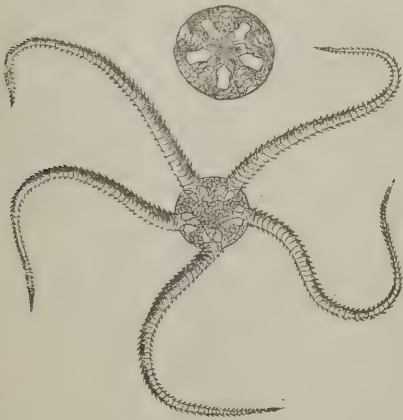
OPHIUROIDEA. One of the first families to claim attention, is the family Ophiuroidea, a group of star fishes having a more or less sharply defined central disk, containing a digestive cavity, which does not pass into the arms. In this respect they differ from the true Asteroidea. There is no opening at bottom. The arms have a number of

arm bones, resembling vertebræ, each of which is made up of two sections. The axis being usually covered with plates or sometimes with a thick skin having rudimentary plates beneath, and the side plates of the arms usually are covered with teeth. The nerves are located inside of the arms, also what is called the ambulacral vessel of the water system, which I will explain later on. The water feet are simply small fine points without suckers at their tips. Each of the five angles of the mouth, is formed of five pieces or arms. The extremities of these mouth-frames are firmly fixed to a jaw, and attached to the inner edges of each pair of jaws is a narrow plate, which supports a number of processes, which doubtless serve the purpose of teeth. The general arrangement of the water and nervous systems is on the ordinary star-fish plan. The enlarged portion in the center is the body cavity and surrounds the digestive tube.

The various species of this family are rightly considered the most beautiful and delicate of all the animals of the sea. Many are covered with spines and marked with beautiful colors, arranged in bands and spots; others get their beauty from the grouping of their armor plates, but in whatever way produced no one will admit they have any superior in Nature's great ocean wonderland. They are commonly called Serpent Stars and by reference to cuts, one sees the serpent like appearance at once. In all cases they are delicate creatures and do not like to be interfered with. In fact, some when taken from the water, will snap arm after arm from the body until in some cases only the central disk

is left. Thus in case of danger rather than give up the whole body to some greedy fish, they give over only a part thereof. The little animal really suffers but little from this loss, for nature soon heals over the wound, and a new arm grows out in place of the old. It is not uncommon to see an Ophiurian with three or four arms and one or two just sprouting out. During their early stages they pass through quite a metamorphosis. The young is a free swimming animal but in the course of growth it becomes sluggish and settles to the bottom, where it ever remains afterward as a creeping creature. It is very commonly found among the tangle and eel grass where its protective coloring affords it a safe retreat. They rarely have over five arms. There are now over 500 described species of this Order, about half of which are found between low water mark and thirty fathoms, and the balance between thirty fathoms and one thousand, or more.

One of the commonest along the Massachusetts coast is *Ophiomusium armigerum*, and another longer spined



variety is *Ophiomusium Lymani*, near Cape Cod. This variety has been

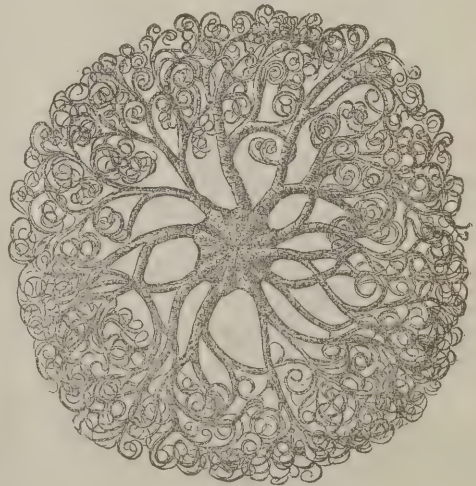
brought up in deep sea dredging in large numbers by the U. S. Fish Commission, the past few years.

*Ophiopholis aculeata* of Bay of Fundy, often called Brittle Star, is a very common species. It is of a reddish



brown color, and covered with short flat spines. Usually three to four inches in diameter.

*Astrophyton Agassizii* of Maine, the only species of the family *Astrophytidae* that we will mention here, is more commonly called Basket Fish or Medusa's Head. The species lacks



the protective plates of those noted above but have in place of it a thick skin in which are imbedded rudimentary plates. It also has no arm spines.



or mouth shields. The terminal branches, however, are often computed to be several thousand. They are found on the various islands south to the Bahamas. Mature specimens measure from 9 to 18 inches across.

#### Order II.

**ASTEROIDEA.** For years the true Star-fishes and Ophiurians were confounded in one general Order, but after careful study one finds as important differences between them as those which separate either from the Sea Urchins. In the Asteroidea, the stomach and ovaries run into each of the arms the entire length so that if any part of the animal becomes detached from the main body, it has the power of growing into a full fledged Star-fish. This is one of the most interesting and curious facts connected with the Order. The Water system consists of a canal running the entire length of each arm. The sexes are distinct but can only be distinguished by microscopic examina-

tion, to the glands which are situated on each side of the interior of the arms or at the junction of the body with the rays. The species lays eggs which pass out of a pore on each side of the base of the arms, situated between two plates and difficult to detect. The embryo is usually a free swimming animal as with the Ophiurians, and develops rapidly. I regret space will not permit following it through its successive stages to the mature animal.

One of the first Astropectinidea to be considered is a large species from Bay of Fundy, *Solaster endeca*. [fig. 1]



Fig. 2.

It has nine to eleven rounded tapering rays. The under surface is a rich cream, which presents quite a contrast to its colored back. It has rather a smooth appearance and is much sought after by collectors.

*Luidia clathrata* from Florida is a species not often met with in perfect shape as it has a habit of breaking into hundreds of fragments as soon as it comes into contact with the air. It measures from 10 to 18 inches across and its rays are long and finger-like.

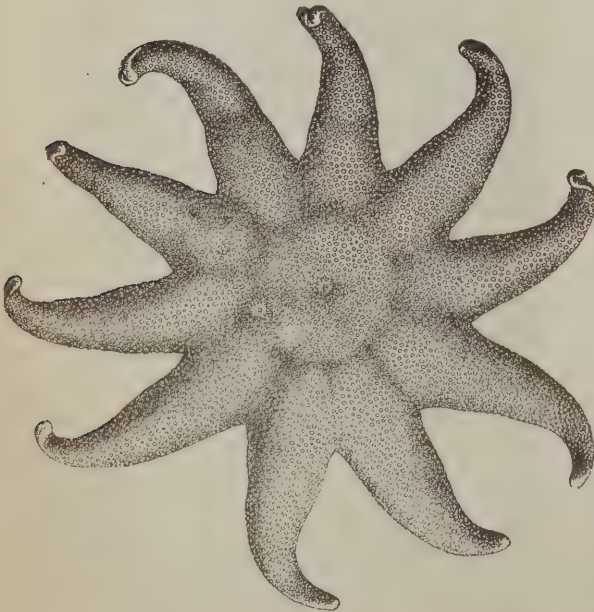


Fig. 1.



Fig. 3.

*Archaster Agassizi* [fig. 2] from the Massachusetts coast, is a deep sea form but quite interesting. It is found from 50 to 2,000 fathoms and measures three or four inches across. It is of a creamy buff color. Closely allied to this is *Archiaster Americanus* from same locality but usually found in water from 75 to 125 fathoms.

*Asterias vulgaris* [fig. 3] of the N. J. coast is a very common species. In fact this species with *Asterias berylinus* of the Massachusetts coast and *Asterias Forbesii*, a very small species of Narragansett Bay, are found in great numbers in their respective quarters. *A. berylinus* is found from Halifax to Florida, while *A. vulgaris* ranges from Long Island sound to Florida, both being common in Massachusetts bay. It is very interesting to watch their movements, and I shall dwell to some extent on these species, as doubtless the largest number of people in the U. S. are familiar with them. From under the surface of the arms, at whose union

is situated the central mouth, a great number of delicate tubules, each one terminated by a minute sucking-disk, may be seen to be vigorously in motion the whole series undulating like wind swept grain. These tubules are hollow and fed from within with sea water, the increase diminution of which within the tubules, regulated by the will of the animal, determines the length to which they may be extended or protruded. Attaching themselves to foreign objects by means of their sucking-disks, the animal may in this way be either drawn forward, or the object of its search drawn to it. The system of vessels that supplies the tubules with water, governing as it does the walking apparatus of the tube-feet, is known as the "Ambulacral" system spoken of heretofore. The area, again, along which the tube-feet are placed, has been called the "Ambulacral Zone" and the intermediate spaces,—the sides and backs of the arms,—the inter-ambulical. On the back of the animal, a little sub-central, and in the angle between two of the arms, is a tumid little body, of a bright orange color, called the "Madreporic tubercle" through which the sea water gains access to the ambulacral system of vessels. All species of Star-fishes, but this one especially, are voracious animals, and they have a method of securing their food which is at once novel and to say the least effective. Siezing their prey which consists largely of shell-fish, they arch themselves over it, turn their stomachs inside out, so as to completely envelope the delicate morsel, and then deliberately proceed to make a meal. In fact, on some parts of our coast, as Maryland,



this Star-fish is the principal enemy of the oyster, and vast quantities of the latter have been gobbled up in a single night by them. They usually make their appearance immediately after the common Atlantic Scallop. We now come to the mammoth Bahama and Florida species, *Oreaster reticularis*. Every one has seen this mammoth species, as large across as a half bushel measure, and fully six inches thick. They are usually to be found in the markets of most of our large cities, being sold, however, simply as a great curiosity. It occurs on both sides of the Atlantic. The upper surface is reticulated by the crossing of the hard parts of the skeleton, and beautiful ornaments are made by removing all the softer parts and leaving only the latticed skeleton.

A few words with reference to collecting these specimens of the mighty deep, and preparing them for scientific study, and I will close. I can do no better than quote from W. T. Hornaday's excellent "Taxidermy and Zoological Collecting:" "Of course when first taken from the water they are limp and pliant, but after standing in an alcohol bath for a short time they become perfectly rigid. If left to themselves when thrown into spirits, the smaller and more serpent like species persist in tying themselves up into double bow knots and insist on keeping themselves so forever. Since the way to cure a Star-fish is to soak it in alcohol for from six to twenty-four hours according to size, and then dry it flat and in good shape, it becomes necessary to pin the small ones firmly in shape upon thin boards before immersing them, and then they will stay

where you put them. See to it that while in spirits, all your Star-fishes large and small, cure in proper shape, flat and with each arm flat and extended in the right direction. After removal from the spirits, pin out those not already fastened upon boards, and let them dry. I have never found it necessary to poison the spirits, for the reason that dermestes and other insects seem to respect a dried Star-fish for his 'own sake.'

It will be impossible to dwell further on these interesting forms of Sea Life as I have already occupied more space than assigned to me. I trust that the brief remarks given, to those who have never studied these families, may be a stimulus to greater effort along this line.

#### Notes From Interior of Mexico.

Just before the last form of the MUSEUM is to go to press, we have a line from the well-known taxidermist and collector, Mr. Frank B. Armstrong.

The letter contains many very interesting points relative to his present field from a collector's standpoint and shows up also quite vividly the class of people one would have to associate with and live among in a summer campaign in Eastern Mexico. I can do no better than quote Mr. Armstrong's own words:

"After eight years of diligent field work on the lower Rio Grande in Texas with good success, and having exhausted most of the rare finds in that section, and further after having thoroughly mastered the Mexican language I determined to change my field of operation to a more virgin land. After considerable travel through Mex-

ico I concluded to make my headquarters in Estadas de Tamanlipas. I am located on a ranch in the heart of almost a wilderness but really a *collector's paradise*. Owing to climate, vegetation, etc., I am satisfied I am within reach of all tropical and semi-tropical products, in the way of Natural Science. I struck this country with a set determination of bringing to science everything of interest and for the past few weeks have been studying bird and animal life in their peculiar haunts. It is a great pleasure to me to be in a new field where I can constantly look for new species of birds and mammals. Next spring I hope to secure a large number of eggs, many of which will be practically new to collections in the States, as Coppery-tailed Trogon and 2 or 3 dozen other species. Some of the more common birds one meets with are Texan Kingfisher, Gnat Ivory-billed Woodpecker, Great Rufous-bellied Kingfisher, Motmots (the birds that with their beaks trim off two of the long feathers in their tail for a space of an inch or so, making the tail look as if there was a tuft on the end), Becards, Inca, Doves, Goldfinches, Wrens, Trogons, Derby Flycatcher, Parrots various kinds, Brown Jays, Mexican Crows, Ani's, Squirrels and a large fauna of small mammals. I am now making up a series of these. I hope in later letters to give the readers of the MUSEUM notes on some of my trips after birds, and some of the curious traits of these semi-tropical species.

"To the north of my headquarters stretches immense swamps covered with shrubbery, coarse grasses and "Tular" as well as *Malaria*? To the

south runs the Tamesi and Paunco Rivers, and heavy forests, while to the west stretches the Sirra Madre range of mountains and table lands. Most any kind of collecting ground is within a few days journey on, as the Mexican's call it, God's own animal the burro, an animal well adapted to the country and people, who depend on him to do everything, even to living without food or water, subsisting on brush fences and rags. Here is the country where ants build wooden houses in trees and where everything that grows except the *Burro* has thorns on it, some of which are trained to hold you when you are following something rare or throw you down while another species stick you.

This is the home of the air plant that will grow without moisture or taking root on anything.

"Here also live a race of people who harmonize with nature except on some the thorns are replaced by scales. Nature has learned these people a good many things, viz: That it is always best to put off until tomorrow what you can as well do today and never provide for the morrow. It will take care of itself. If they haven't got anything to eat some neighbor has and it is all the same. Food is easily gotten. Fruit grows in abundance and by way of variety, corn can be hammered out into Tortillas (bread) and parched corn makes good coffee. Red peppers grow in the yard and dried meat lasts forever, so what do they want? Clothes are hardly necessary although some of them do wear a few. Their houses are easily built out of poles and mud with palm leaves roof. With the aid of a little native music



and their melodious voices they can make night as hideous as you please. They are always happy and glad to see strangers, and will accept anything you offer them or anything you carelessly leave around. It is very pleasant to be entertained by a lot of them and they take great interest in your wares especially a freshly made up bird skin or something that can be broken in handling. They will stay with you at camp as long as your larder is full and will cheerfully allow you to bring all the wood and water, do all the work around camp, occupy your seat and put things where you can't find them. They know the names of all the birds and have them well classified as will be seen when I say they have the Woodpecker and Mockingbird in the same family. They seem to be glad they are living and really they ought for they want for nothing, except for more Naturalists. A good collecting place is right among them as the birds and animals seem to come out of the thickets to mingle with the natives. Only a few days since a Jaugar carried off a burro near town in daylight.

"I find a great many tropical species here whose habitat is given farther south, and so far many species that I have not been able to identify from the books of my own. These I shall hope to cover in a later letter.

### Glaciers of Greenland.

The following entertaining and instructive article from the pen of Prof. Thomas Chamberlain, head of the department of geology of the University of Chicago, who accompanied Lieut. Peary's last expedition to the far north,

recently appeared in the New York *Commercial Advertiser*.

The study of Greenland glaciers, says the professor, has a specific bearing upon one of the most widespread and important of our geological formations. The larger portion of sixteen of the northern states and smaller portions of eight or ten others are covered by a mantle of clay, sand, and gravel, filled with bowlders transported from the north. This mantle forms the sub-soil of about one-third of the cultivated portion of the United States and a very large part of its fertility is dependent upon this. The spreading of this mantle over these States very much subdued the topography and thereby rendered the construction of railway lines and other means of transportation easy and economical where they would otherwise have been difficult and expensive, and in some cases impracticable. Many lines owe their existence to the smoothing down of the surface brought about by this formation.

The explanation of this deposit, which is known as the "drift," has been one of the most difficult problems of geology, and probably more has been written upon it than upon any other single topic in the whole range of science. It was formerly attributed to great floods sweeping down from the north. Later it was quite generally referred to icebergs floating over the region during a state of submergence. It is now generally attributed to glaciers that are believed to have covered nearly one-half of North America, reaching southward as far as New York, Cincinnati, St. Louis and Kansas City. It is only in Greenland and

the Antarctic regions that glaciers of such vast dimensions and of like modes of action are now found, and of these, Greenland offers the only accessible field of investigation. Hence the importance of studying its glaciers as a means of elucidation of one of our most important and interesting geological formations.

Evidences of like action are found in both countries. For instance, glaciers in moving over the surface rub away the soil and sub-soil and break up and carry along with them more or less of the rock below, and in doing this they score and groove and polish the underlying rock surface in a way altogether peculiar to themselves. They thus engrave their own record—their autobiography, so to speak—and we have only to decipher their language to read their history. The material that is carried along by them is also rubbed, bruised and scratched, and more or less ground to powder, and when the action ceases this material is spread out upon the surface or heaped up into ridges alone. All these characteristics are abundantly displayed in both countries, and it is quite clear that the work that is now being done by the glaciers of Greenland is of the same nature as that formerly done upon a large part of our country.

This implies great changes in our climate. The climate of Greenland probably formerly prevailed over our northern states. Glaciation is, however, a very strange phenomenon, and we do not yet know all its mysteries nor the full range of conditions that render it possible. I examined fourteen glaciers in the northern district, and three on Disco island. In a more

general way I saw something of three or four score others, but can hardly be said to have examined them. It should be understood that nearly all these are tongues, or lobes, of the great inland icecap of Greenland, or of local icecaps, and that the study of these icecaps was an important part of my work.

I visited the inland ice and had the good fortune to have the guidance of Lieut. Peary in a trip upon the main icecap, in which we went sufficiently far to get a typical view of the great fields of the interior. My studies were, however, chiefly on its margin, as it was most important to me to ascertain what was the nature of the base of the ice, and its methods of erosion, transportation and deposition. The glaciers of the Alps, and of mountains generally, are chiefly formed from snows accumulated on the upper slopes in lofty amphitheatres or in the ravines or gulches that crease their peaks. These creep down the valleys, often joining similar streams from adjacent valleys. They may be likened to the branches of a tree, gathering into a common trunk. The glaciers of Greenland, on the contrary, chiefly spring from an icecap, which covers the whole interior. From this icecap tongues creep out in all directions. Instead of several snow fields gathering to form one glacier one snow field sends out many glaciers. The great icecap of Greenland puts forth some hundreds of glaciers. There are, however, glaciers of the Alpine type in Greenland.

One of the most obvious characteristics of most of the glaciers I studied is their termination in vertical faces,



even when they end on the land. Most known glaciers slope down to a thin edge at their extremities. These commonly, not always, end in vertical cliffs of ice 100 to 150 feet high. The sides also are frequently vertical. By reason of this they reveal many features that are usually concealed. I have never before seen glaciers that presented such admirable facilities for investigation as those of this northern region. The most striking structural feature revealed by those vertical faces is the pronounced stratification of the basal ice.

Not only is the ice definitely bedded, but the rocky and earthy material which the glaciers carry in their bases is arranged in layers. In some cases the layers are twisted and comforted, and in others they are shoved over each other. The detailed study of these gives many clues to the modulus operandi of the ice action. The rate of movement of the ice generally is very slow. In a few of the more vigorous glaciers, where action is concentrated and intensified, the movement is considerable, but on the average it is probably quite safe to say that the movement of the ice border is less than a foot a day, probably less than a foot a week. It is certain that the ice once extended some distance beyond its present border, but I think I have good evidence that it never completely overwhelmed the coast region, at least, not in recent times. I am confident that it never extended across Baffin's bay and Davis' straits to the mainland and formed the center from which the glaciation of our country was derived, as has been held by some geologists.

The glaciation of our country must have had a center or centers of its own. I discovered a small driftless area on the borders of Bowdoin bay, a phenomenon which has a very important bearing upon the former extension or rather non-extension of the ice. I know of no other region that offers superior or even equal facilities for glacial study. The great variety of glacial forms and freedom with which the structure is exposed make it an extraordinarily rich glacial field. The available season is short, the distance great, the obstacles considerable, the dangers something, but to the earnest student of glaciation it offers rewards that fully justify all expense and risk. I would only recommend it, however, to serious investigators fully aware of its contingences and adequately prepared to meet them.

The immediate district of Inglefield gulf presents at least four great series of rocks. At the base lies a complex mass of crystalline rock of the granitic, or more strictly, gneissic class, probably of Archaean age. On the peninsula east of Bowdoin bay there are quartzites that closely resemble those of our Huronian period. Overlooking the crystalline rocks unconformably there is a series of red sandstones probably 1,000 to 1,500 feet thick. On this lie light grey sandstones, probably 1,500 to 2,000 feet thick. Over this again lies a series of thin, brownish sandstones and shales that perhaps reach 2,000 to 2,500 feet in thickness. All these are traversed by dykes of igneous rocks, cutting them in various directions.

No fossils have yet been found in any of these rocks and hence their ages

are not known. Judging from the boulders which the inland ice bring out to its border the interior of Greenland opposite this region must be occupied by crystalline rocks, probably of Archaen age. The specimens brought back from Cape Faraday and Clarence Head by the party that visited Ellesmereland show that sandstone and shales, as well as granite and igneous rocks, occur there also.

### Some Common New England Rocks.

One of the most common rocks throughout New England is *Mica Schist*. It is probably next to gneiss the most abundant rock. It is chiefly composed of mica, but has thin layers of glassy quartz, which are short and overlapping. While it usually consists of mica and quartz, it may be composed of mica alone, or kaolin and clay, sometimes take the place of the quartz. In this case, however, the mica is usually very fine, and the rock is what would be called clay slate. Also when the mica becomes deficient, the substance passes into an ordinary quartzite. Quite frequently we find feldspar present in the mixture. There is probably no other rock that contains such a large variety of beautiful accessory minerals as mica schist. This makes it one of the most interesting and attractive rocks for the mineralogist. Also, few rocks are so distinctly stratified; and the stratifications can usually be observed in hard specimens. The mica may be either muscovite or biotite, or both, but the former is most common. There is probably no other rock that shows a greater variation in the per-

centage of silica which it contains as mica schist, for as above noted, we find it from almost all mica to almost all quartz. A rock that is closely related to mica schist is hydromica schist, in which the ordinary anhydrous mica is replaced by dydromica. It is easily distinguished from mica schist by being somewhat softer, less harsh to the touch, and less lustrous.

*Gneiss*, is the *most important* of all rocks. It probably forms half of New England and a very large proportion of the earth's crust. The name (pronounced the same as *nice*) is known to have originated among the Saxon miners, but its precise derivation is lost in obscurity. It is usually composed of several minerals, the most common of which is pink feldspar-orthoclase. By close examination we find also small quantities of quartz, which usually forms in small irregular, glassy grains, entirely devoid of cleavage and scratching glass easily. On weathered surfaces, we find the orthoclase soft and chalky, while the quartz remains clear and hard. It has usually been considered that the three main constituents of gneiss was orthoclase, quartz and mica, but it is now recognized that he may have true gneiss without any mica, and that the latter may be represented by hornblende. When the gneiss is composed of quartz and orthoclase, it is called *binary gneiss*. When it contains mica in addition to the above, we call it *micaceous gneiss*, and of hornblende, *hornblendic gneiss*. However as noted above, orthoclase usually comprises one-half of the rock. In addition to the above minerals, we frequently find as accessory minerals,



the following : garnet, cyanite epidote, fibrolite, chlorite, tourmaline, etc. Other rocks will be noted in future issues.

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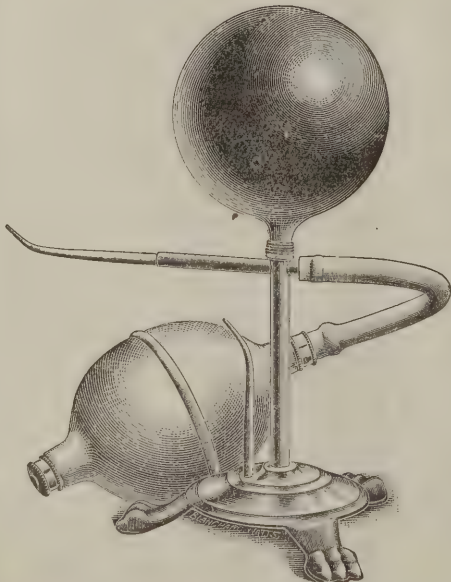
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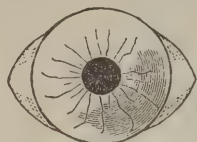
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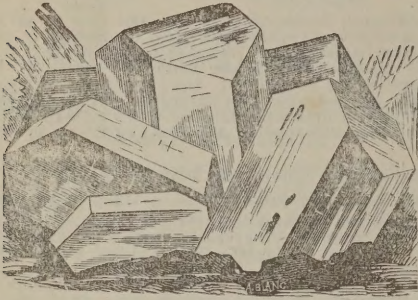
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*Stalactites* from Arizona. Same county as above. 2 in., 10c; 4 in., 25c; 8 in., \$1.00, 12 to 18 in. long by 4 to 6 in. at base, \$2.00 to \$4.00. These are white blended with green.

*Malachite*, *Azurite* and *Cuprite* blended together making one of the richest combinations imaginable. 1 x 1, 10c; 2 x 2, 25c; 3 x 3, 75c; 4 x 4, \$1.50; 6 x 6, \$3.00

*Malachite Velvets*. Too fragile to be safely entrusted to the mails. Fine large specimen, \$1.00. Finest in stock \$5.00

*Fluors*. The Cumberland County, England Fluors have been famous the world over for their beauty. Formerly were common but are now becoming very rare. I have just, prior to going to press, opened a case of fine specimens, 1 x 1, 15c; 2 x 2, 25c; 3 x 3, 50c; 4 x 4, \$1.00.

*Calcite Crystals*. Egremont. England. Fine, clear, perfect points and cheap at 25c to \$1.00

*Pyrites on Calcite Crystals*. Very showy and hard to secure. 25c to \$1.00.

*Marcasite Crystals*. Perfect and curious. 25c, 50c and 75c.

*Ruby Blende*. Small crystals, 10c. Finer, 25c. Some of best at 50c.

*Rubellite*. A new importation direct from Lower California. Consists of clear, pink crystals. Very pretty. Specimens range from 25c to \$1.50

The above are all sure to please, for as stated all are very pretty and "tone up" a cabinet so it will be admired by everyone. Prices are *prepaid*.

**WALTER F. WEBB, Albion, N. Y.**

### To Mineralogists, Collectors and Students:

In order to be abreast of the times in any department of science, it is necessary to rely in a measure upon a publication devoted to the subject in which you are interested.

THE MINERAL COLLECTOR aims to supply the news relating to Mineralogy. To publish scientific reports and descriptive articles. To describe new localities and the minerals they afford. To facilitate the exchanging of specimens among careful collectors, who really have good material to exchange. And to advertise the wares of the dealer in mineral specimens and accessories. THE MINERAL COLLECTOR is meant to be a popular publication, and worthy the patronage of the amateur and professional collector. It will be published monthly, twelve times a year. The subscription price is one dollar a year, in advance. Active collectors may realize this small outlay by careful attention to the contents of a single number. Subscribe now.

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My price 25 cents prepaid—For 10c extra or 35c I will put in a neat pad of Data Blanks.

**WALTER F. WEBB, Albion, N. Y.**









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## An Open Letter to You.

I wish to call your attention to one fact which, were you personally acquainted with me, might not be necessary. It is this, viz: *THE MUSEUM has come to stay.*

You will agree with me that there is no magazine of this character east of the Rockies, that pretends to be illustrated. You will also agree with me that the illustrations are of scientific interest. I also feel that you will agree that 12 numbers like this one prepaid are worth \$1.00. The next step then is to put a \$1.00 greenback in a letter and address to the publisher.

You may say that it is common practice for all 'yearling' magazines to say, "We have come to stay," etc, and that I guess I will wait six or eight months and see how it pans out then. To these doubters I will add—Send on your dollar and if you don't get twelve numbers in the next twelve months as good as this one, you can have your money refunded.

In forthcoming numbers I propose to have some finely illustrated articles on other Land and Marine Curios, Mollusca, Minerals, mainly crystalized forms of special interest, Palæontology, etc. In fact, no matter what you are interested in I shall give you a great big \$1 worth. If you are not in the least interested in the magazine you will do some friend a favor as well as myself by handing same to him,

Fraternally,

WALTER F. WEBB, Publisher,

Albion, N. Y.